

Daily GLOWBUGS

Digest: V1 #38

via AB4EL Web Digests @ SunSITE

Purpose: building and operating vacuum tube-based QRP rigs

[AB4EL Ham Radio Homepage @ SunSITE](#)

%%%% GlowBugs %%%% GlowBugs %%%% GlowBugs %%%% GlowBugs %%%%

Subject: glowbugs V1 #38

glowbugs

Wednesday, May 21 1997

Volume 01 : Number 038

Date: Wed, 21 May 1997 12:53:23 +1000

From: Murray Kelly <mkelly@faraday.dialix.com.au>

Subject: Re: 6146 Transmitter

My favoritest oscillator circuit. Used in the 'synthetic rock'. I have had much success with it and have developed a 'twist' I have never seen anywhere else.

The original circuit was made to run into a tube (of course) but in translation to s-s the capacitative loading was wonderful but the DC bias problem of low resistor values was never addressed.

So I tried bootstrapping the emitter to the bias supply and the loading on the tuned tank dropped so much I was able to reduce the feedback to half. Maybe could have gone more. I reckon the same principle would work with a tube. The project is started - but then so is the count-down to Christmas.

rdkeys@csemail.cropsci.ncsu.edu wrote:

> A sleeper that we don't see too often is E.O. Seiler's oscillator. That
> is also a very good design, if you go back and look at the original article
> from about 1941 in QST.

* Murray Kelly vk4aok mkelly@faraday.dialix.com.au *
* 29 Molonga Ter. / Graceville/ QLD. 4075/ Australia *
* ph/fax Intl+ 61 7 3379 3307 *

Date: Tue, 20 May 1997 19:57:03 -0700 (PDT)

From: Ken Gordon <keng@uidaho.edu>

Subject: Re: 6146 Transmitter

> Since this reflector is into homebrew and mods, etc I wonder if someone
> could explain the substitution difference between those three tubes and
> the 12BY7 ??
> The reason I ask is that I picked up a pair of Heath DX-35's at the
> Rochester, NH Mudfest. After moving parts around I wound up with one TX
> minus a pair of 12BY7's.
>
> My idea is to convert the "parts unit" (about a 5 cosmetics) to a
> strictly 6 and 10M AM rig. My initial thoughts are to use a 6CL6 as
> the osc and a 5763 as the driver to the 6146. Besides socket wiring and
> basic Eg..Es parameters does anyone see a problem?

Several things you should be aware of concerning the DX-35, if you aren't already:

1) In the original design, the oscillator and driver were connected in series (for DC) across the 600 VDC source. I.e. the plate of the oscillator got its DC voltage from the cathode of the driver, and the driver plate got its voltage directly from the HV DC.

2) The power transformer ran at or near its absolute maximum ratings. So it was not a good idea to load it up to the full 90 watts capability of the 6146, especially on AM. I used to leave mine on all the time, and I burnt up 2 power transformers over 3 years. I eventually replaced mine with a hefty unit out of a TV set, siliconized the rectifier, used the "Universal" circuit, and modified the oscillator and driver for standard shunt feed. It ran many years that way.

3) The controlled-carrier cathode modulation could be improved by a few simple mods. I don't remember what they were, but perhaps others on this list could help.

4) The moving-vane plate meter was really un-reliable. I replaced mine with a good Simpson meter. Cost me a couple of weeks work to earn enough to pay for it.

5) My particular DX-35 didn't have enough plate capacitance to operate correctly on the low end of 80. I installed a 3 position rotary switch near the final tank tuning cap to add capacity as I needed it.

6) I replaced the 6146 with a 6293 since, on some bands, I had trouble keeping the grid drive to 3 ma or less. 6293 has a heavier grid and is designed for pulse.

My DX-35 was my first transmitter. I worked all summer to earn enough money to buy it, and it was worth it.

Later I resurrected it, modified a VF-1 for shift-pot RTTY and used the combination to drive a modified BC-610E (a 304TL at nearly a KW) for traffic handling.

Ah, yes...those were the days.

Date: Tue, 20 May 1997 20:49:52 -0700 (PDT)
From: JMcAulay <jmc@QNET.COM>
Subject: Re: 6146 Transmitter

At 05:27 PM 5/20/97 -0400, you wrote:

>> >The 6AG7 has been the small octal tube of choice for years. I forget
>> >the 9 pin and 7 pin numbers offhand (since I don't use those series
>> >tubes very often).
>>
>> The 6CL6 is (nearly) the miniature 6AG7. 12BY7 and 5763 were also used
>> very commonly. Towards the end of the tube era the ARRL Handbooks were
>> pushing another tube (6GK6?). I've internalized the oscillator tube
>> recommendations I've read to translate to "any (pentode) video
>> amplifier", but I don't know if all video amp tubes have separate
>> suppressor pins.
>
>Yup 6CL6 is what I was thinking of as used in many of the novice and heathy
>things. The 12BY7 is the standard driver tube. The 5763 was used also
>as oscillator and driver tube in the 50's and 60's.
>
>Has anyone ever found a sub for the 6CL6? That pesky critter is a tad
>scarce these days, and I can find no direct sub for it in my tube basing
>charts. I sense a run on them forthcoming as fodder for heathy rigs.

My experience with the 6CL6 always led me to believe that the darned thing is irreplaceable, but I never used a 12BY7 very much (my last BC transmitter had a 12BY7 oscillator). Many 6CL6s I have used, all the way from audio to six meters, and nary a whimper or any taking-off-unbidden. Not so with the 5763. Physicist friend who long ago forgot more than I'll ever know about thermionic valve design said to me once, "Look at the RCA data on a 5763. It'll tell you the tube was designed as an oscillator-multiplier. And if you give it half a chance, it'll oscillate or multiply." He's the one who suggested the 6CL6 for any straight-through operation, and I do believe I was steered well.

73
John

Date: Wed, 21 May 1997 05:32:47 +0000
From: Sandy W5TVW <ebjr@worldnet.att.net>
Subject: Re: 6146 Transmitter

At 03:49 AM 5/21/97 +0000, you wrote:

>My experience with the 6CL6 always led me to believe that the darned thing
>is irreplaceable, but I never used a 12BY7 very much (my last BC transmitter
>had a 12BY7 oscillator). Many 6CL6s I have used, all the way from audio to
>six meters, and nary a whimper or any taking-off-unbidden. Not so with the
>5763. Physicist friend who long ago forgot more than I'll ever know about
>thermionic valve design said to me once, "Look at the RCA data on a 5763.
>It'll tell you the tube was designed as an oscillator-multiplier. And if
>you give it half a chance, it'll oscillate or multiply." He's the one who
>suggested the 6CL6 for any straight-through operation, and I do believe I

>was steered well.

>

>73

>John

>

>

Well said! I remember when RCA started hyping the 5763. It looked like a very ideal

little PA tube to me and I used in in circuits as sort of a super 6AQ5! The damned things LOVE to take off, by gosh! We also tried them in the early days of SSB

(The GE "SSB Jr." and the Central Electronics 10A and 10B) as linear amplifiers.

Usually 4-6 in parallel. The 6CL6 proved to be a MUCH better choice and much "tamer". We were running them in grounded grid configuration. This

might sound silly today, but when all you have is 10 watts PEP and you wanted more, AND you went to school and couldn't afford bigger tubes/power supplies, you used them. Seems like

we got about 30-40 watts carrier or about 75-80 watts PEP out of 4 of them.

They

didn't last too long (maybe 6-8 months) but they were cheap.

73

E. V. Sandy Blaize, W5TVW

"Boat Anchors collected, restored, repaired, traded and used!"

417 Ridgewood Drive,

Metairie, LA., 70001

ebjr@worldnet.att.net

Looking for: 860 tubes, WL-460 tubes

Butternut HF2V antenna, G-R test gear.....*

Date: Wed, 21 May 1997 09:47:20 +0000

From: "Brian Carling (Radio G3XLQ / AF4K)" <bry@mnsinc.com>

Subject: Re: 6146 Transmitter

On 19 May 97 at 9:08, EWoodman@aol.com spoke about 6146 Transmitter and said:

> Just curious.....has anyone built one of those 75W, single
> tube, 6146 transmitters such as Paul, N6EV, shows in his files from
> the '57 Handbook?

>

> 73 Eric KAIYRV

Actually I have one just like it here - bandswitching 80-10m.

I didn't build it, but it is homebrew & well made.

Only problem is with neutralization.

When I first fired it up the neut. cap was arcing badly!

So now I need a 10 or 20 pF trimmer cap that can withstand about 800-1000 V DC

Anyone know where such a beast can be obtained?

Bry

*** 73 from Radio AF4K/G3XLQ Gaithersburg, MD USA *
** E-mail to: bry@mnsinc.com *
*** See the interesting ham radio resources at: *
** <http://www.mnsinc.com/bry/> *

Date: Wed, 21 May 1997 09:47:18 +0000
From: "Brian Carling (Radio G3XLQ / AF4K)" <bry@mnsinc.com>
Subject: Re: The Junkbox Radio Net--More Stations Needed!

THIS IS GREAT, Jeff!

Now if I can JUST find what I did with that 8400 kc rock!!!

DO you think an indoor dipole on the 2nd floor and 15 watts AM will get me any contacts? Fortunately I live in the DC suburbs and I understand there is a NET here locally on Sunday mornings.

On 19 May 97 at 8:55, Jeff Duntemann spoke about The Junkbox Radio Net--More Station and said:

> Well, last night I called CQ AM 6M on 50.4 every couple of minutes
> between 7 and 7:30, with no luck. Then at 7:30 I raised KA7QBX,
> working a Thor from outside Casa Grande, about a 75 mile line of
> sight path to me here in extreme north Scottsdale. We BSed for
> awhile and realized we were cross-polarized, and still making Q5
> copy, each with 35w output. Not too shabby. That afternoon I had
> finally found the receiver mute pins on the back of the 99er by
> pulling the chassis and tracing wires, so the 99er and the TX-62
> were properly integrated for PTT, and I was looking forward to a
> little more action.
>
> I listened for another half an hour after he signed, but no one else
> appeared. So next Sunday nite, crank up those cranky empty state
> boxes and let's have at it! 50.4 Mc, 7:00PM Arizona time. It's a
> long weekend, so put off your Arizona weed whacking until Monday and
> save Sunday night for the Junkbox Radio Net! Cross polarization is
> no impediment!
>
> (Maybe I should run announcements like this on Friday!)
>
> --73--
>
> --Jeff Duntemann KG7JF
> Scottsdale, Arizona
>
>

*** 73 from Radio AF4K/G3XLQ Gaithersburg, MD USA *
** E-mail to: bry@mnsinc.com *
*** See the interesting ham radio resources at: *
** <http://www.mnsinc.com/bry/> *

Date: Wed, 21 May 1997 09:54:03 +0000

From: "Brian Carling (Radio G3XLQ / AF4K)" <bry@mnsinc.com>

Subject: Re: 6146 Transmitter

On 19 May 97 at 15:05, Ken Gordon spoke about Re: 6146 Transmitter and said:

> > All of my rocks then were all metal cases).

>

> I always considered those too light for anything but receivers and
> heterodyne oscillators. I do use one (3503) in my GRC-109, but

> sometimes it refuses to start.

>

> Ken W7EKB

Yes, Ken, those rocks are limited to how much current they will take, BUT if you use something small and simple like a 6C4 osc. then you can use the smallest of xtals with impunity.

Just a thought!

Bry

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*****
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** E-mail to: bry@mnsinc.com *
*** See the interesting ham radio resources at: *
** http://www.mnsinc.com/bry/ *
*****
```

Date: Wed, 21 May 1997 09:54:03 +0000

From: "Brian Carling (Radio G3XLQ / AF4K)" <bry@mnsinc.com>

Subject: Re: 6146 Transmitter

Just to clarify, my 6146 rig is a two stage jobbie with a 6AG7 or something for the osc.

Bry

```
*****
*** 73 from Radio AF4K/G3XLQ Gaithersburg, MD USA *
** E-mail to: bry@mnsinc.com *
*** See the interesting ham radio resources at: *
** http://www.mnsinc.com/bry/ *
*****
```

Date: Wed, 21 May 1997 09:57:14 +0000

From: "Brian Carling (Radio G3XLQ / AF4K)" <bry@mnsinc.com>

Subject: ROCK SOCKETZ!

Speakig of crystals not fitting sockets, here is an idea I am going

to use with some of these many non-fitting rocks!

Take an old, way-off-freq-from -the-ham-bands crystal and open it up. take away everything except the base, and attach (solder in place) two alligator clips pointing upward.

These could be mounted using a VERY short piece of stranded wire to give the arrangement some flexibility.

This way you could clip in HC6/U, HC33/U or whatever your heart desired!

Anyone else tried it?

On 19 May 97 at 18:06, Chris Broadbent spoke about Yet another GRC-109 and said:

```
>
> I received my GRC-109 RX/TX/big power supply on Friday. I wonder if
> I was the one to get the last set from Fair?
>
> The set appears to be in good shape. The only noticable damage is
> from what I believe was battery acid. There is a little green
> corrosion on the clip that holds the TX power plug when stowed. It
> appears to have reached the knurled knob of the antenna tuner, there
> is a very small area of erosion on it. Aside from the scuff marks
> of life, that was about it.
>
> I used the set this weekend. It seems to work just fine. One funny
> problem is I have no FT243 xtals, so I had to balance an HC6U
> package in the TX's FT243 socket. This works OK until the tapping
> on the built in Morse Key causes the xtal to fall!
>
> The key itself, while being functional, does not appear to be as
> consistent in nature as my normal key. It seems like it
> occasionally oxidizes or does not contact as well as it might.
> Holding it just so seems to lessen the effect. Regardless, it's a
> very minor problem. Does anyone else experience this?
>
> All in all, I am quite happy with my purchase. Now all I need is
> the few pages that are missing from the manual I ordered (I know
> they don't copy everything, but even taking that into account, I
> have a few missing pages). Fair said they will send me the missing
> pages. Watch this space.
>
> BTW, was 80M as dead for you all as it was for me yesterday
> (Sunday)? I'm in central TX. Little else but noise here.
>
> --
>
> Cheers,
>
> Chris F. Broadbent ( KC5VQL )
>
*****
*** 73 from Radio AF4K/G3XLQ Gaithersburg, MD USA *
** E-mail to: bry@mnsinc.com *
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Date: Wed, 21 May 1997 10:42:57 -0400 (EDT)

From: rdkeys@csemail.cropsci.ncsu.edu

Subject: Re: High power xtal osc rigs

>

> >If you want to try a high-power xtal set (150watt 813 tube), look on the
> >back cover RCA ads from about 1939 or so in QST, and there is a tiny
> >little schematic, about an inch and a half square, that IF you blow it
> >up several times, is a complete 150watt xtal oscillator using the 813 tube.

>

> And what kind of crystals would you use in this one tube 813 rig?
> FT-243's worked in the QSL-60 I built using a 6L6WGB but I don't know about
> higher power! Will FT-243's work above 60 watts or do I hunt for a bigger
> crystal?
> I've got some late 30's QST's and a spare 813. Might be worth building...

Typically, you would use the larger sized plates from things like FT-171's
30's era holders and the like. Sometimes R-1 or the other RCA rocks can
be found in marine or aviation frequencies, and you can regrind those.
Smaller sized rocks will work but you have to be very careful with them

> The QSL-60 & QSL 40 were in QST sometime in the 40's. Have to check my back
> issues sometime.

Someone posted a list of those way back. I dunno if I have them, but Sutter
published all those rigs between 1938 and 1942 when he went on the final
watch, if I have my head straight today. Anyone still have that list of
Sutter articles around and wanna resend it to the list?

Bob/NA4G

Date: Wed, 21 May 1997 08:40:19 -0700 (MST)

From: Jeff Duntemann <jeffd@coriolis.com>

Subject: Re: The Junkbox Radio Net--More Stations Needed!

At 09:47 AM 5/21/97 +0000, Brian Carling (Radio G3XLQ / AF4K) wrote:

>THIS IS GREAT, Jeff!

>

>Now if I can JUST find what I did with that 8400 kc rock!!!

>

>DO you think an indoor dipole on the 2nd floor and 15 watts AM
>will get me any contacts? Fortunately I live in the DC suburbs
>and I understand there is a NET here locally on Sunday
>mornings.

8400 rocks are pretty common. Try ordering one from Peterson Radio. I'll
bet they have stock.

Back in 1978, I used to QSO with Mike O'Brien WB9MJV (I was WB9MQY at the
time) on our Sixers across a three mile path on the far north side of
Chicago (Rogers Park), both of us in second floor brick apartments with

indoor horizontal dipoles made of 300 ohm TV lead-in. It was real marginal most of the time, especially since our signals were not strong enough to fully quiet the racket that a Sixer is so very good at making. It made me wonder just what Sixers *are* good for, since urban radio chatter seemed not to be their strong suit.

(Actually, nuking Channel 2 is something for which it's hard to beat a Sixer...)

15 watts will get you farther, but don't expect too much. I have a 6m Ringo up 30 feet in the clear air. You might check to see what the conventional polarization is for the net; there's no point in being horizontal if everybody else is vertical.

Good luck with it, in any event. Antennas are critical; see if you can improve that part of the equation. Let us know here how you do.

- --73--

- --Jeff Duntemann KG7JF
Scottsdale, Arizona

Date: Wed, 21 May 1997 13:40:34 -0400
From: Ray LaRue <raylarue@gte.net>
Subject: High power xtal osc rigs

Been reading the mail on high power xtals. Thought I'd contribute a bit for the serious types??

I have about 20- RCA precision frequency control plug-ins. They were made to provide a pretty hefty drive of up to 100 vpk, at 50 to 175 ma from 3.5 to 20 Mhz. They are in an 115 vac oven, designed for 60 degrees C, @ 14 watts. Size is about 2.5"x2"x4" high. They have 6 banana type pins on the bottom side.

I have not taken any apart. Don't know the size of the quartz inside. These were pulled from some 50's generation TV transmitters. They are marked from about 1 mhz to overtones up to 152 mhz. Guess if there was some interest, I could rig a jig and test for fundamental frequencies.

The biggest thing going for them if they could be brought on frequency, is it seems they would survive the high drive environment of the current thread on high power xtal oscillators. They are available FS or trade.
73,
Ray, W4BYG

Date: Wed, 21 May 1997 14:02:43 -0400 (EDT)
From: Radiomatt@aol.com
Subject: Re: ROCK SOCKETZ!

didn't the ft-243 rocks fit into the pins of an octal toob socket?
matt

Date: Wed, 21 May 1997 12:48:00 -0600
From: Alex Mendelsohn <alexm@pennwell.com>
Subject: FW: 6146 Transmitter

Hi Bry:

Why not just make your neutralizing cap out of two small metal plates. I've even seen ones made from coins (silver, eh?) with a threaded screw sweat soldered to one "plate" for adjustment. The point is, the value of C you need is very small, so this is an easy thing to fabricate on the bench.

Another thing that's done occasionally, is to put a higher working voltage cap in series with your lower voltage capacitor. Good luck es vy 73, Alex, AI2Q in Kennebunk, Maine .-.-.

From: Brian Carling (Radio G3XLQ / AF4K)
To: ALEXM; 'EWOODMAN@SMTP <EWoodman@aol.com>'
Cc: 'GLOWBUGS@SMTP <glowbugs@www.atl.org>'
Subject: Re: 6146 Transmitter
Date: Wednesday, May 21, 1997 10:17AM

On 19 May 97 at 9:08, EWoodman@aol.com spoke about 6146 Transmitter and said:

> Just curious.....has anyone built one of those 75W, single
> tube, 6146 transmitters such as Paul, N6EV, shows in his files from
> the '57 Handbook?
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> 73 Eric KALYRV

Actually I have one just like it here - bandswitching 80-10m.
I didn't build it, but it is homebrew & well made.

Only problem is with neutralization.

When I first fired it up the neut. cap was arcing badly!

So now I need a 10 or 20 pF trimmer cap that can withstand
about 800-1000 V DC

Anyone know where such a beast can be obtained?

Bry

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Date: Wed, 21 May 1997 14:24:20 -0500
From: Conard Murray <ws4s@InfoAve.Net>
Subject: Re: ROCK SOCKETZ!

Hi Matt,
Yes, you can even fit a pair in to an octal socket by placing the xtals
back-to-back.
73,
Conard
--

Date: Wed, 21 May 1997 15:47:45 +0000
From: "Brian Carling (Radio G3XLQ / AF4K)" <bry@mnsinc.com>
Subject: Re: The Junkbox Radio Net--More Stations Needed!

On 21 May 97 at 8:40, Jeff Duntemann spoke about Re: The Junkbox
Radio Net--More Sta and said:

> Good luck with it, in any event. Antennas are critical; see if you
> can improve that part of the equation. Let us know here how you do.

Well Jeff, maybe what I CAN do is to set up a rotary dipole or
2-element job in the attic. Problem is this attic looks like it was
deliberately made to keep hams out!

The crawl entry is through a ceiling. Even if I was younger this
thing would be daunting!

It's small - like about 2' X 3' and when you open it up, there is
sort of a wooden box going up into the attic, so that you can't really
crawl through! Now IF they have vertical polarization,
I might do better by erecting something on a small mast out the window
when I want to operate!

I hope this Goony hears better than a SIXER. I owned one of them once
and I never heard a single signal out of it! Just that gawd-awful
"RUSHING" sound, he he!

I may wind up getting a TEN TEC transverter, and drive a 6146 or
something with it!

73, Bry AF4K

Date: Wed, 21 May 1997 15:47:44 +0000
From: "Brian Carling (Radio G3XLQ / AF4K)" <bry@mnsinc.com>
Subject: Re: High power xtal osc rigs

On 20 May 97 at 19:10, Dave spoke about Re: High power xtal osc rigs
and said:

> Bob,
>
> I have a rock in an aluminum holder almost the size of my hand
> labeled "740.000 KC". Ya 'spose that might work? Oh - wrong band!

Dave, you play a few records and amuse the neighbours though!
How about an 813 oscillator modulated by a pair of 811As ??

THAT would get their attention!

```
*****
*** 73 from Radio AF4K/G3XLQ Gaithersburg, MD USA  *
** E-mail to: bry@mnsinc.com                        *
*** See the interesting ham radio resources at:      *
** http://www.mnsinc.com/bry/                       *
*****
```

Date: Wed, 21 May 1997 15:47:45 +0000
From: "Brian Carling (Radio G3XLQ / AF4K)" <bry@mnsinc.com>
Subject: Re: 6146 Transmitter

On 21 May 97 at 5:32, Sandy W5TVW spoke about Re: 6146 Transmitter
and said:

> At 03:49 AM 5/21/97 +0000, Sandy, W5TVW wrote:

> Well said! I remember when RCA started hyping the 5763. It looked
> like a very ideal little PA tube to me and I used in in circuits as
> sort of a super 6AQ5! The damned things LOVE to take off, by gosh!
> We also tried them in the early days of SSB (The GE "SSB Jr." and
> the Central Electronics 10A and 10B) as linear amplifiers. Usually
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> much "tamer". We were running them in grounded grid configuration.
> This might sound silly today, but when all you have is 10 watts PEP
> and you wanted more, AND you went to school and couldn't afford
> bigger tubes/power supplies, you used them. Seems like we got about
> 30-40 watts carrier or about 75-80 watts PEP out of 4 of them. They
> didn't last too long (maybe 6-8 months) but they were cheap.

Speaking of things taking off, I wonder if anyone has any tips on
preventing parasitics? When you have tried the usual
fixes like: R-C choke on the plate cap, 15 ohm input series resistor,
neutralization cap etc. what else can you do?

I have had problems on both a 6146 and a 1625 PA stage
self-oscillating and misbehavin' on me here.
I have some more neutralizing work to do, but I hate messing with
that.

Some designs don't even require a neut. capacitor.
Why is that? WOULD it be possible to add some "swamping" resistance
across the grid input of the final stage?

How does shielding come into this? It seems to me like we
used to put up kind of a shield "wall" under the chassis
to isolate the final tank and the previous stages from each
other.

Some rigs put a grounded shield around the grid coil of the final.
My 1625 rig has that but it doesn't seem to help much! When
everything is set right it runs OK with no self-osc, but if the

pi-net if off resonance, boy does it howl a lot!

The 6146 rig is another story. When I got that the neut. cap was fried - arcing over. I hope to remedy that soon with the help of a friend. Having had so little experience (and I mean SUCCESSFUL experience - grin!) neutralizing finals I thought I might try to draw on the tricks of the old(er)-timers here.

What say ye, lads?

Bry, AF4K

Date: Wed, 21 May 1997 15:47:43 +0000

From: "Brian Carling (Radio G3XLQ / AF4K)" <bry@mnsinc.com>

Subject: Re: Vackar Oscillator (was: 6146 Transmitter)

On 20 May 97 at 13:08, Jeff Duntemann spoke about Vackar Oscillator (was: 6146 Transm and said:

>
> >My favorite at this point is the Vackar. I have not yet figured
> >out how to use the Seiler. Vackar oscillators, when properly built,
> >seem to be driftless and chirpless (well, almost...)
>
> I have the seminal article on the sold-state Vackar from *Ham Radio*
> in the Seventies. I would love to investigate a tube Vackar. Any
> pointers to articles? It would seem like the king of all VFOs.
>
> Since you mentioned it in text I snipped out already, I'll second my
> recommendation to the group of any and all RSGB publications. They
> are MUCH more oriented to homebrewing than current ARRL pubs, and if
> you get the knack of local jargon like "earthed," "mains," and
> "valves," you'll find a tremendous amount of practical hard
> information.

Jeff, there is a pointer to a VACKAR VFO design on my web page at:
<http://www.mnsinc.com/bry/hamfiles.htm>

Take a look. I think it is a schematic. Now you have my curiosity up.
Maybe I should build one of these!

I am presently loooking at restoring an old homebrew VFO I have in
the shack.
It uses a 6AC7 and has a plug-in coil scheme. It lives in a nice BUD
BOX, and has a NATIONAL 0-150 reduction drive dial.
The dial is kind of grubby looking but it works and the whole thing
is rather sturdy looking.

The output of this thing is a loosely coupled link.
It appears to be usable on 80 metres.

*** 73 from Radio AF4K/G3XLQ Gaithersburg, MD USA *
** E-mail to: bry@mnsinc.com *
*** See the interesting ham radio resources at: *
** <http://www.mnsinc.com/bry/> *

Date: Wed, 21 May 1997 13:50:05 -0600
From: dfrancis@iex.net (Dexter Francis)
Subject: Re: PCB layout/fab

Back when we did the PacketMac Modem I used a PC fab shop back in Illinois that does almost all the PCB's for the projects in 73 magazine. I don't recall his name at the moment but we got over 500 little boards done by him and the quality and pricing were very good. You could probably look them up in any issue of 73 or call them and just ask who it is/was.

I use MacDraw for my board layouts, but I'd guess almost any good PC based drawing package could work.

I don't know of any inexpensive PC layouts for the PC.

- -df

* CWest Tube Sales - P.O.B. 22443 SLC, UT 84122 *
* http://www.usa.net/~dfrancis/CWest_Tube_Sales.html *
* e-mail to: tubes@usa.net *

Date: Wed, 21 May 1997 15:50:44 +0000
From: "Brian Carling (Radio G3XLQ / AF4K)" <bry@mnsinc.com>
Subject: Re: ROCK SOCKETZ!

On 21 May 97 at 14:02, Radiomatt@aol.com spoke about Re: ROCK SOCKETZ! and said:

> didn't the ft-243 rocks fit into the pins of an octal toob socket?
> matt

Yes, but I have about 7 differet types of crystals here that all need to be able to adapt to such sockets.

That is why I am going to try the alligators!

*** 73 from Radio AF4K/G3XLQ Gaithersburg, MD USA *
** E-mail to: bry@mnsinc.com *
*** See the interesting ham radio resources at: *
** <http://www.mnsinc.com/bry/> *

Date: Wed, 21 May 1997 14:22:18 -0600
From: dfrancis@iex.net (Dexter Francis)
Subject: Re: 6CL6's

I have a tube sub book that lists the 6L43, 6197 and 6677 as substitutes. The tube is listed in the 1955 RCA RC-17 databook, so the design is fairly old.

The tube is a Power Pentode with separate connections to all grids and no cross ties. Max plate voltage is 300. With 250 on the plate, Grid 3 at cathode potential, Grid 2 at 150, and grid 1 at 3 Volts, you get a 2.8 watt output. (Class A1) It is listed as a video amp and wide band amp for test and lab gear. It's a noval socket.

One of the problems in using a tube substitution handbook rather than the applications section of a tube handbook, is that there are often other tube types that are functionally the same (eg; Power Pentode) but not directly plug and play swappable due to basing or voltage differences. For the money (about \$20) a good tube handbook, like the RCA RC-19 is a great investment if you aren't tied to the constraints of an existing circuit design.

- -df

* CWest Tube Sales - P.O.B. 22443 SLC, UT 84122 *
* http://www.usa.net/~dfrancis/CWest_Tube_Sales.html *
* e-mail to: tubes@usa.net *

Date: Wed, 21 May 1997 15:24:07 -0500 (CDT)
From: Bob Roehrig <broehrig@admin.aurora.edu>
Subject: Re: ROCK SOCKETZ!

On Wed, 21 May 1997 Radiomatt@aol.com wrote:

> didn't the ft-243 rocks fit into the pins of an octal toob socket?

Yup, they sure do.

E-mail broehrig@admin.aurora.edu 73 de Bob, K9EUI
CIS: Data / Telecom Aurora University, Aurora, IL
630-844-4898 Fax 630-844-5530

Date: Wed, 21 May 1997 15:26:59 -0500 (CDT)
From: "Carol N. Wright" <cnw@HiWAAY.net>
Subject: Re: ROCK SOCKETZ!

Hey Bry and Gang,
Yep, FT-243 style crystals do fit into the octal tube sockets. Hey, I'm using the 8 pin octal sockets. They fit just fine Bry. Matt, AE4JM

Date: Wed, 21 May 1997 15:32:39 -0500 (CDT)
From: "Carol N. Wright" <cnw@HiWAAY.net>
Subject: Re: ROCK SOCKETZ!

Hey Conard,

You have me mixed up with Bry. Hee Hee! He asked if my crystals fit alright in the octal sockets, I replied yes. He put my name at the end of his message I guess because he forgot my email address and just sent it to the list so that I'd get it. Hee Hee! <g>

Although, I've heard from other people that your idea works well. I tried it and there is just about a perfect fit, beats paying \$3 or \$4 for a FT-243 crystal holder. <g> Best 73 DE Matt, AE4JM

Date: Wed, 21 May 1997 16:49:38 -0400 (EDT)
From: rdkeys@csemail.cropsci.ncsu.edu
Subject: Re: ROCK SOCKETZ!

>
> didn't the ft-243 rocks fit into the pins of an octal toob socket?
> matt
>

Yes, you can fit two FT-243 rocks on an octal socket, A-La Johnson. That is a very common rock socket these days for general usage in HB gear, when the real sockets are not available. A simple high impedance snap switch or rotary will switch between the two, and if you mount say 3 octal sockets, you can switch 6 crystals, easily.

Bob/NA4G

Date: Wed, 21 May 1997 15:57:51 -0500 (CDT)
From: Spencer Petri <spetri@e-tex.com>
Subject: Re: Rock Socketz

FT-243s will fit octal tube sockets and the socket can be wired so that no matter how the crystal is inserted it will correct to the circuit.

73 de Pete WA5JCI

EM-21--6 Mtr -- WAS #490, WAC CW, DXCC/91 Countries, VUCC #361/618 Grids

2 Mtr -- 36 States -- VUCC #346/183 Grids

Date: Wed, 21 May 1997 17:25:46 -0400 (EDT)
From: rdkeys@csemail.cropsci.ncsu.edu
Subject: Playing with a modern spark tuner --- suprising funzies

As a funzies aside, this past three weeks, Tim/W4TIM and I have been winging it in a local elementary school for gifted and talented kids in the grades 3-5, on the subject of radio. One of the things we did was to put together a working OT xtal set using scrounged parts from here and there. On a 25 foot antenna, and plugged into the electrical ground for the earthing, that fool thing worked like a house afire!

I was totally flabbergasted. The kids ate it up, too. They all were full of the gee whiz at radio coming in out of nothing. Transistors were no fun, except to see through the window at an eprom, from the point of view that there were 2000 transistors in there that if broken out would make 2000 xtal sets. They liked peering into that little window through a microscope.....

Anyway, as a test lashup of a GOOD xtal set, as the first run in the developmental ladder of radio, whilst puttering around the shack late last night, with nothing better to do, I wound a proper loose coupled spark tuner with a 60 turn secondary and a dual 40 turn primary, and coupled it at about an inch. Using a series primary circuit to a Toploaded-T (80M dipole using openwirefeed with the feeders tied together) and ground, and a parallel secondary circuit, and tuning each circuit with a dual section 365pf variable, the tuner was fed into a 1N34 style diode and a pair of 2000 ohm tin cans. It easily tuned from about 150 to 800 meters, and the selectivity was astonishing. I was not expecting that kind of selectivity out of a ``loose coupler'' style lashup. I would guess it was better than 20khz at 6db down, and maybe better than that. I was hearing stations 500 miles and more away quite comfortably. The kilomegawatt locals were easily separated, and the weak ones were armchair copy after some of the locals went to bed. I thought sure something must be wrong, it is working right!

As an alternate coil, I tried the coil out of a BC-375 longwave loading coil that I have had for years and wondering what to do with it. It also worked very well, but at lower frequencies maybe down to 1000 meters. This was a big 5 inch tube with variometer and litz wire.

This was utterly amazing to an old pfarte that as a kid used to wind countless coils on everthing I could muster up, and using every kind of detector from 1N34's to galenas to razor blades, and had lousy success with them at the early times. Must have been the LA smog.....

This immediately suggests to the olde pfarte that a modern repro of the SE 142 or SE 1220 style thingie, with an outboard (or maybe inboard like the SE 1420) detector and a heterodyne oscillator like a BC-221 or such, properly put together and tuned, might make a quite usable 160M glowbug receiver. In a regenerative mode, it should work quite well, too. Hmmm, should be fun to do.....

..... off to scrounge in the parts bin, a scroungin' we will go.....

..... now, to find some of those good variometer couplers and real switch points.....

Anyone else built a good xtal set or heterodyne set lately? I would be curious to hear how it worked out.....

73/ZUT DE NA4G/Bob UP

Date: Wed, 21 May 1997 14:32:21 -0700 (MST)
From: Jeff Duntemann <jeffd@coriolis.com>
Subject: Re: PCB layout/fab

At 01:50 PM 5/21/97 -0600, you wrote:

>Back when we did the PacketMac Modem I used a PC fab shop back in Illinois
>that does almost all the PCB's for the projects in 73 magazine. I don't
>recall his name at the moment but we got over 500 little boards done by him
>and the quality and pricing were very good. You could probably look them up
>in any issue of 73 or call them and just ask who it is/was.

That's FAR Circuits, in East Dundee, Illinois. (Or was it West Dundee? I
get my Dundee's confused sometimes...)

I just bought several boards from him, and the list of things he stocks is
IMMENSE.

He offers boards for most QST projects. Flip through the last several QSTs
to find a PC board project, and dollars to doughnuts FAR has the board for
it, and is cited at the end of the article. I'll look for his list and
post all pertinent material tomorrow.

- --73--

- --Jeff Duntemann KG7JF
Scottsdale, Arizona

End of glowbugs V1 #38

%%%% GlowBugs %%%% GlowBugs %%%% GlowBugs %%%% GlowBugs %%%%

[AB4EL Ham Radio Homepage @ SunSITE](#)

Created by **Steve Modena, AB4EL**
Comments and suggestions to **modena@SunSITE.unc.edu**
